AMERICAN METER COMPANY

SB-8505.2

1200B Service Regulators

Maximum Inlet Pressure 125 PSIG

AMC Quality System
QMI is Accredited by:

ISO 9001 Certified
Certificate #006697

Dutch Council
for Accreditation

AMERICAN METER COMPANY
Measurement Engineers Since 1836

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1200B Service Regulators

General Information

The American Meter 1200B pressure regulators are designed for natural gas applications and features a compact, lightweight design for fast, easy installation. Interchangeable orifices and springs provide a wide range of outlet pressures and flow rates. Outlet pressures between 5" W.C. and 5 PSIG are available. Operating temperature range is -20˚ F to 140˚ F (-30˚C to 60˚C). Maximum flow rate is 1300 SCFH (37 m^3/h).

The diaphragm case may be easily removed for routine inspection without disturbing the line connections. All models conform to ANSI Code B109.4-1998, and CGA Service-type Regulator Specification CAN/CGA-6.18-M95.

Exclusive, 7 - Step Corrosion Protection

The protective finish on the 1200B regulators resists corrosive effects of weather and harsh environments better than any other in the industry. Each precision die cast aluminum regulator is treated-inside and out-with a special conversion coating that's part of an exclusive, 7-step finishing process. This coating greatly inhibits oxidation of the metal's surface that can eventually compromise the integrity of the metal. It also prevents finish paint from cracking and blistering.
A single coat polyester primer and the high solid polyurethane top coat provides a long-lasting protection to all exterior regulator surfaces. The American Meter conversion coating process meets all environmental protection regulations.

High Tensile Strength Valve Bodies

Each of 1200B regulators are equipped with a high tensile strength cast iron valve body that rotates in 90-degree increments and features extra heavy wall thickness. This provides maximum strength to withstand installation stresses without damage and prevents thread galling experienced with aluminum.

Series 1200B regulator valve bodies are treated with a 5-step metal finishing process. The treated metal is painted with a single coat polyester paint.

Available valve body sizes are: 1/2" x 1/2", 1/2" x 3/4", 1/2" x 1", 3/4" x 3/4", 3/4" x 1" and 1" x 1" NPT or BSP-TR.

Application

Models 1213B, 1243B and 1253B w/ Jeavons USSA features a full capacity internal relief valve with large passages to assure the fast release of gas (See performance graphs on page 6). For added protection, a relief valve stop is provided to assure operation under the most severe conditions. The standard relief spring setting is 7.0" W.C. above the normal 7" W.C. outlet pressure.The relief point for a 2 psig outlet spring is 1.6 psig above the outlet pressure.

Models 1243B & 1283B are equipped with overpressure shut-off (OPSO) that provides protection against downstream overpressure. Models 1253B and 1293B w/ Jeavons USSA provide underpressure shut-off in addition to overpressure shut-off. Valve body configuration permits the 1200B regulators to be supplied in four positions as specified on page 7. Except for OPSO equipped models, all 1200B regulators are available with either right angle (90 degree) or straight flow (180-degree) valve bodies. Vents can also be supplied in four different positions.

All 1200B models are designed with an extra large, removable weather and bug-proof stainless steel screened vent to resist freeze-ups and to exclude foreign matter. The vent is threaded with 3/4 inch NPT threads making it suitable for indoor installations.

Options

Meter Bar- All 1200B regulators can be supplied with detachable meter bars for compact and convenient installation to meters with 6" connection centers. Use of a meter bar prevents piping stress from being transferred to the gas meter.

Vent Elbow- The regulator vent opening should face downward (6 o'clock) **to minimize the chance of blockage from ice and snow.** If not, a 3/4" NPT plastic, 90˚ vent elbow (Part number 78041P025) and separate protective screen (Part number 70400P017) may be screwed into the vent to provide the necessary protection.

Elevation Compensation- E.C. orifices are also available, which provide constant outlet pressure even when inlet pressure fluctuates greatly. The elevation compensation orifice is a device which reduces changes in regulator outlet pressure due to change in inlet pressure.

The E.C. orifice is recommended for installations where the inlet pressure may vary over a wide range. The E.C. orifice is available in two sizes: 1/8" x 3/16" (Part number 73698G006) and 3/16" (Part number 73698G005). Its capacity is the same as a standard orifice of the same size. Consult your American Meter Sales Representative for specific applications.

① AC-250 Aluminumcase Meter ② 1213B Regulator

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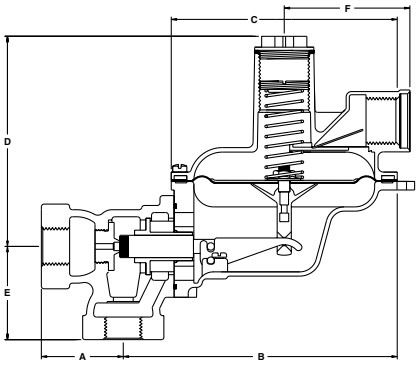
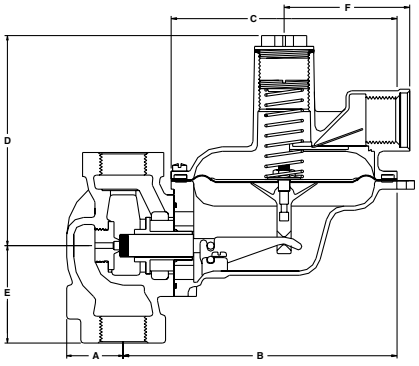
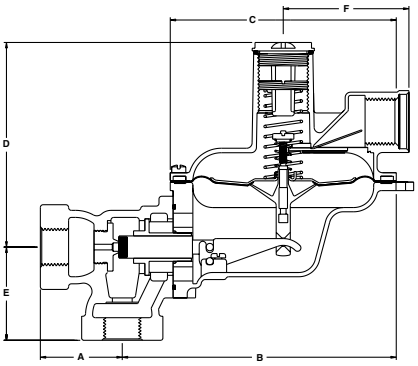
Model 1203B-90˚



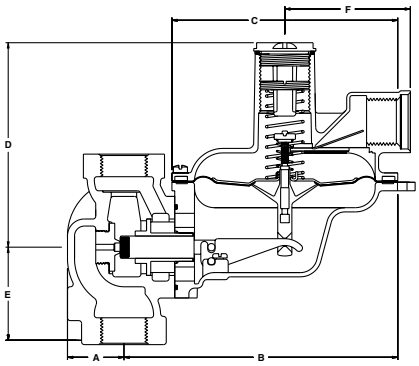
Model 1203B-180˚



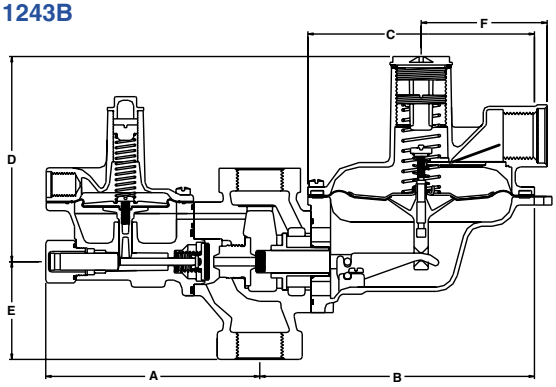
Model 1213B-90˚



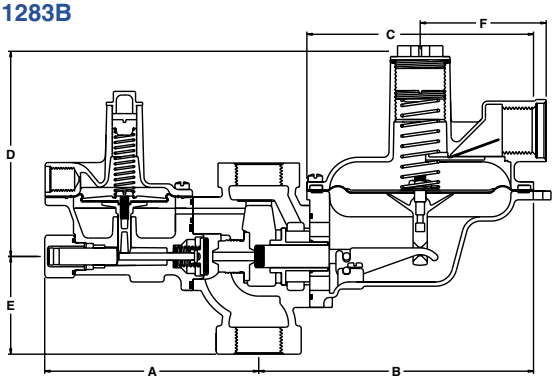
Model 1213B-180˚



Model 1243B



Model 1283B



Dimensions Model 1203B & 1213B

Inlet	Outlet	A		B	C	D	E	F
		90˚*	180˚*					
1/2"	1/2"	1-13/16"	1-1/4"	6-1/16"	5"	4-9/16"	2-1/16"	2-25/32"
3/4"	3/4"	1-13/16"	1-1/4"	6-1/16"	5"	4-9/16"	2-1/16"	2-25/32"
3/4"	1"	1-13/16"	1-1/4"	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"
1"	1"	1-13/16"	1-1/4"	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"
1/2"	1"	1-13/16"	—	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"

Dimensions Model 1243B & 1283B

Inlet	Outlet	A	B	C	D	E	F
1/2"	3/4"	4-3/4"	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"
3/4"	3/4"	4-3/4"	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"
3/4"	1"	4-3/4"	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"
1"	1"	4-3/4"	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"
1/2"	1"	4-3/4"	6-1/16"	5"	4-9/16"	2-5/32"	2-25/32"

Overpressure Shut-off Regulators

Overpressure Shut-off (OPSO) Regulators

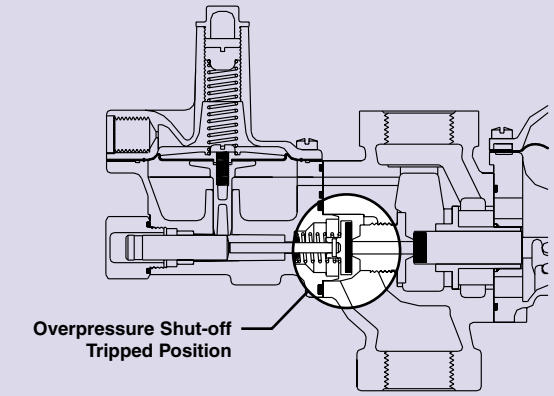
Models 1243B, and 1283B regulators are compact units designed to regulate line pressure and to provide protection against any downstream overpressure. Model 1243B is equipped with an internal relief valve. Model 1283B is non-relieving.

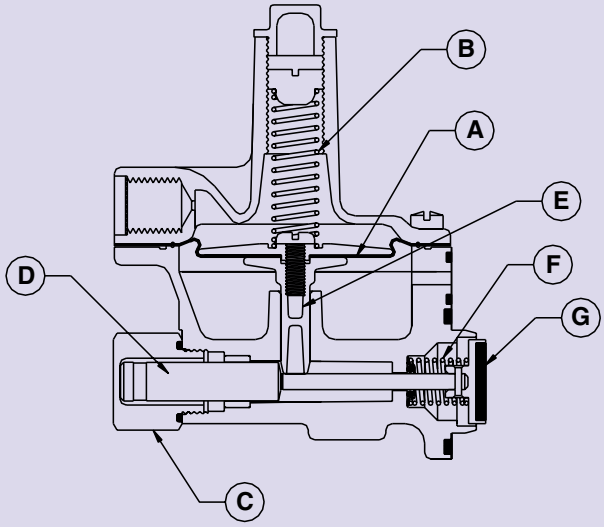
Rugged, Compact OPSO - Operates independently. The OPSO will shut-off the gas supply in the event of a serious downstream pressure build-up.

Adjustable Overpressure Shut-off - Pressure is adjustable via the overpressure shut-off adjustment screw to settings from 14" to 35" W.C. and 1 to 3-1/2 PSIG depending on spring selected.

Extra Safety - Model 1243B provides added protection by incorporating a full capacity relief valve. This internal valve is the same as in the 1213B and operates in the same manner to combine safety features.

Special Installation Possibilities - Model 1283B is non-relieving and does not provide external venting. Thus, it provides overpressure protection for areas where unnecessary or dangerous venting must be avoided.





How The OPSO Operates

When the outlet pressure exceeds the OPSO set point, the pressure under the OPSO diaphragm (A) compresses the pressure spring (B) forcing the diaphragm stem (E) upwards and releasing plunger (D). This permits the shut-off spring (F) to force the shut-off disc (G) against the back side of the special double ended orifice.

Shut-off Assembly	Adjustable Trip Point Range
72978G070	14" to 35" W.C.
72978G071	1 to 3-1/2 PSIG

Note: When selecting the shut-off spring range, a differential of 14" W.C. above the normal operating pressure and the shut-off pressure is recommended for normal line pressure variations. The OPSO setting is preset at the factory to the desired trip point.

To reset the OPSO simply unscrew cap (C), pull back the plunger (D) until the diaphragm stem (E) repositions.

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Full Open Regulator Relief Capacity

For sizing downstream relief valves, use the following formulas to determine the regulator full open capacity:

For critical flow rates

$$Q = 0.5\ C \times \frac{P_1}{\sqrt{G}}$$

For sub-critical flows

$$Q = C\ \frac{\sqrt{P_2 h}}{\sqrt{G}}$$

Key:

Q	=	Maximum capacity of regulator
C	=	Orifice constant, see table
P_1	=	Inlet absolute pressure (PSIA)
P_2	=	Outlet absolute pressure (PSIA)
h	=	Differential pressure (P1 - P2)
G	=	Specific gravity of gas

Orifice	C
1/8"	25
1/8" x 3/16"	25
3/16"	57
1/4"	98
5/16"	149

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1200B Regulator Capacity Performance

Capacity 3/4" Outlet 1200B Regulator Set Point 7.0" W.C. @ 50 SCFH

SCFH 0.60 specific gravity gas @ 60˚ F & 14.7 PSIA. Pressure spring 70017P003. Outlet pressure variance not to exceed +2" -1" W.C. from set point, horizontal position.

Inlet	Orifice Size				
(PSIG)	1/8	1/8 x 3/16	3/16	1/4	5/16
1				170	180
2			180	250	260
3	150	175	250	320	330
5	200	225	325	400	450
10	300	320	425	500	650
15	390	420	550	600	800
25	500	525	700	750	1000
35	600	650	1000	1050	
50	800	900	1000		
60	800	900	1000		
75	800	900	1000		
100	800	900			
125	800	900			

For optimum performance, maximum inlet pressure should not exceed maximum capacity rating for any given orifice size.

Capacity 1" Outlet 1200B Regulator Set Point 7.0" W.C. @ 50 SCFH

SCFH 0.60 specific gravity gas @ 60˚ F & 14.7 PSIA. Pressure spring 70017P003. Outlet pressure variance not to exceed +2" -1" W.C. from set point, horizontal position.

Inlet	Orifice Size				
(PSIG)	1/8	1/8 x 3/16	3/16	1/4	5/16
1				170	180
2			190	250	260
3	150	175	250	320	330
5	200	225	325	400	450
10	300	320	425	500	650
15	390	400	550	600	800
25	500	525	700	750	1200
35	600	650	1000	1075	1200
50	800	900	1000		
60	1000	1000	1000		
75	1000	1000	1000		
100	1000	1200			
125	1000	1200			

For optimum performance, maximum inlet pressure should not exceed maximum capacity rating for any given orifice size.

Capacity 3/4" Outlet 1200B Regulator Set Point 2 PSIG @ 50 SCFH

SCFH 0.60 specific gravity gas @ 60˚ F & 14.7 PSIA. Pressure spring 70017P040. Outlet pressure variance not to exceed +/- 10% from set point, horizontal position.

Inlet	Orifice Size				
(PSIG)	1/8	1/8 x 3/16	3/16	1/4	5/16
3	65	120	145	170	210
5	115	165	175	240	290
10	180	260	250	365	460
15	225	340	310	450	535
25	300	425	400	580	705
35	355	540	540	650	835
50	435	690	680	830	
60	550	740	760		
75	610	865	925		
100	790	1125	1160		
125	815	1325			

For optimum performance, maximum inlet pressure should not exceed maximum capacity rating for any given orifice size.

Capacity 1" Outlet 1200B Regulator Set Point 2 PSIG @ 50 SCFH

SCFH 0.60 specific gravity gas @ 60˚ F & 14.7 PSIA. Pressure spring 70017P040. Outlet pressure variance not to exceed +/- 10% from set point, horizontal position.

Inlet	Orifice Size				
(PSIG)	1/8	1/8 x 3/16	3/16	1/4	5/16
3	100	155	155	155	190
5	145	175	185	225	310
10	240	295	265	330	500
15	300	320	315	425	590
25	410	465	440	570	835
35	515	570	550	675	1050
50	670	675	680	895	
60	760	750	765		
75	925	940	960		
100	1170	1160	1025		
125	1210	1160			

For optimum performance, maximum inlet pressure should not exceed maximum capacity rating for any given orifice size.

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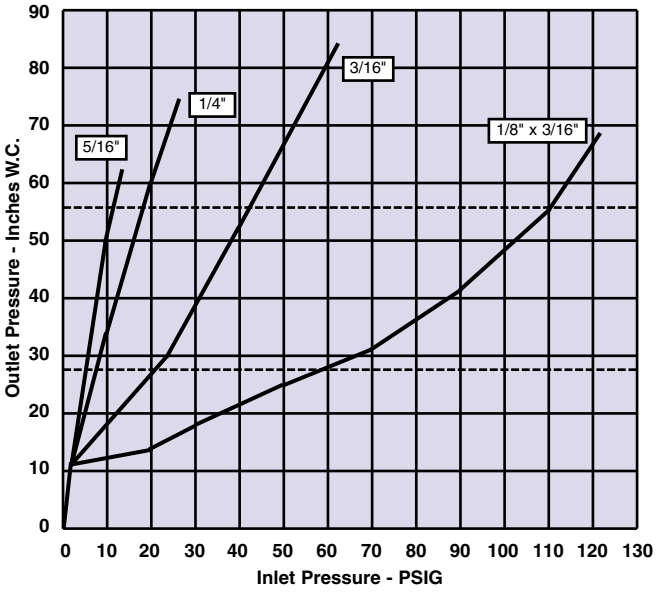
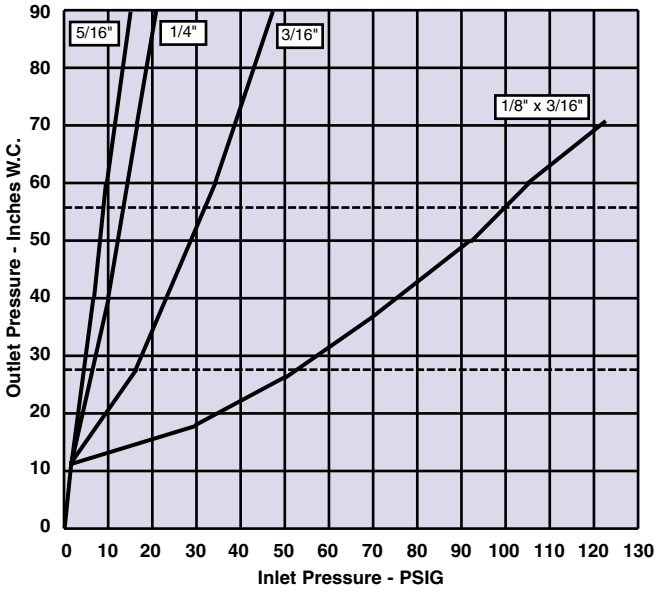
1213B Regulator Relief Valve Performance

There are several methods of measuring the relief performance of a regulator. For the 1213B service regulator, the worst case scenario will occur when the lever is disconnected. The data presented in the tables below represent this condition.

Outlet Pressure Relative To Inlet Pressure
3/4" Screened Vent - No Vent Pipe
Set Pressure 7" W.C.



Outlet Pressure Relative To Inlet Pressure
3/4" Screened Vent - 10' Vent Pipe With Two Elbows
Set Pressure 7" W.C.



Pressure Springs

Outlet Pressure	Color Code	Part Number 1203B & 1283B	Color Code	Part Number 1213B & 1243B
5" to 9" W.C.	Black-Orange	70017P002	Orange	70017P003
6" to 12" W.C.	Black-Red	70017P065	Black-Red	70017P065
9" to 15" W.C.	Black-Green	70017P004	Black-Green	70017P004
1/2" to 1 PSIG	Yellow	70017P044	–	–
1 to 2 1/2 PSIG	Black-Blue	70017P040	Black-Blue	70017P040*
2 1/2 to 5 PSIG	Red-Orange	70017P041	Red-Orange	70017P041

* 2 PSIG Max.

Orifice Sizes

Orifice Size	Part Number	
	Standard	w/ OPSO
5/16"	72494P022	72751P013
1/4"	72494P021	72751P012
3/16"	72494P020	72751P011
1/8"	72494P019	–
1/8" x 3/16"	72494P030	71751P020

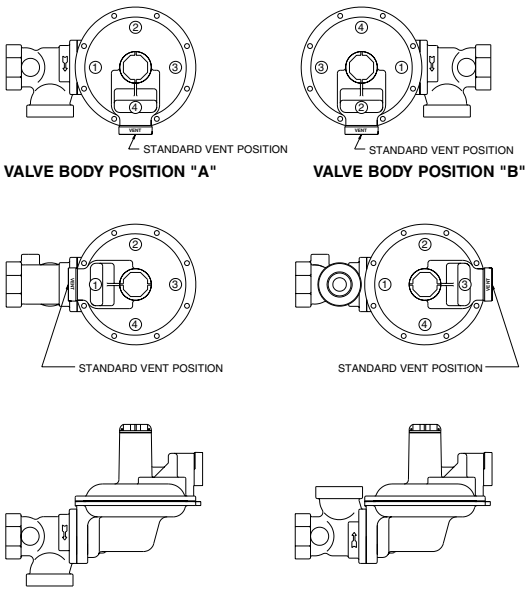
See page 5 for maximum inlet recommendations and capacity performance for each orifice size.

Maximum Recommended Inlet Pressure

Orifice Size	Inlet Pressure (PSIG)
5/16"	100
1/4"	125
3/16"	125
1/8" x 3/16"	125
1/8"	125

1200B Service Regulators

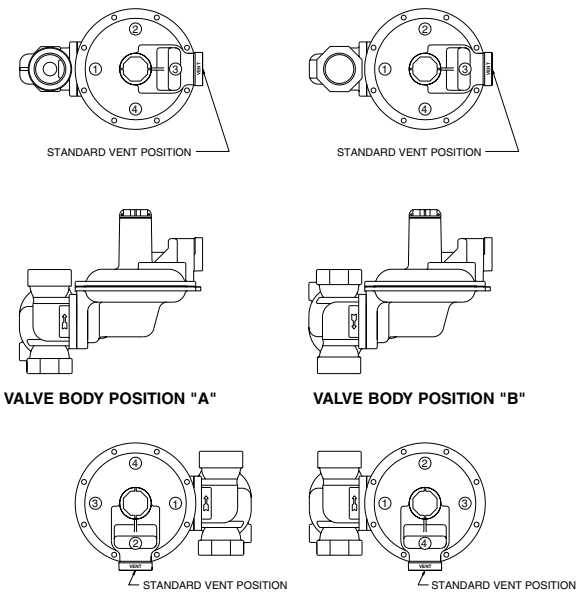
Regulator Assembly Positions For 90˚ Models



VALVE BODY POSITION "A" VALVE BODY POSITION "B"

VALVE BODY POSITION "C" VALVE BODY POSITION "D"

Regulator Assembly Positions For 180˚ Models



VALVE BODY POSITION "A" VALVE BODY POSITION "B"

VALVE BODY POSITION "C" VALVE BODY POSITION "D"

Regulator Descriptions

Model Number	Description
1203	Basic regulator, non-relieving with 1/4" NPT vent (Pilot).
1203B	Basic regulator, non-relieving with 3/4" NPT vent.
1213B	Basic regulator, full capacity internal relief with 3/4" NPT vent.
1243B	Basic regulator with full capacity internal relief and overpressure shut-off with 3/4" NPT vent.
1283B	Basic regulator, non-relieving and over-pressure shut-off with 3/4" NPT vent.
1253B w/ Jeavons *	Basic regulator, full capacity internal relief, overpressure and underpressure shut-off with 3/4" NPT vent.
1293B w/ Jeavons *	Basic regulator, non-relieving, overpressure and underpressure shut-off with 3/4" NPT vent.

* For Jeavons (USSA) operation, see Brochure SB-8556.

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Construction

Lower Diaphragm Case - Precision die cast aluminum with a exclusive 7-step advanced conversion coating, single coat polyester primer and High Solid Polyurethane Top Coat.

Top Assembly - Precision die cast aluminum with a exclusive 7-step advanced conversion coating, single coat polyester primer and High Solid Polyurethane Top Coat.

Valve Body - Cast grey iron, undercoated, single coat polyester primer and High Solid Polyurethane Top Coat, (Rotates in 90 degree increments).

Pressure Spring - Steel, Zinc plated and yellow chromate. Color coded for identification.

Diaphragm Plate - Steel, terne plated.

Seat Disc - Buna-N.

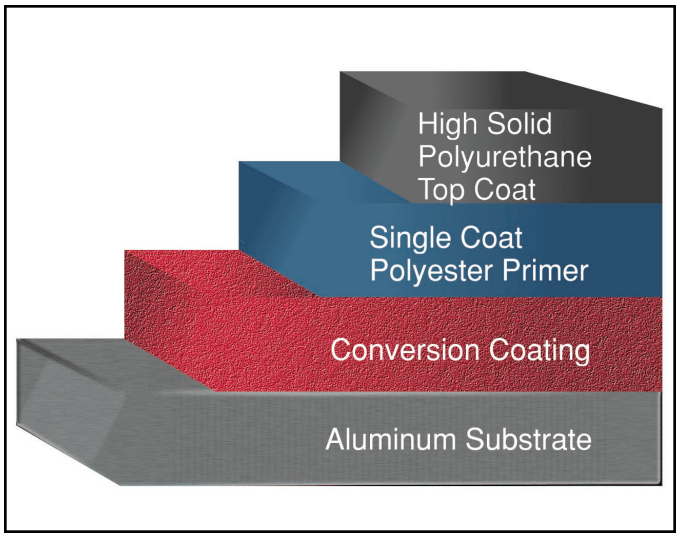
Orifice - Super high strength, corrosion-resistant, aluminum.

Lever - Steel, zinc plated and yellow chromate.

Vent Screen - Stainless steel.

Seal Plug - Ultraviolet stabilized, minlon.

Corrosion Protection



Ordering Information

1 Model number.
2 Size of inlet and outlet.
3 Inlet pressure, psi.
4 Outlet pressure, inches W.C. (or PSIG).
5 Flow, scfh.
6 Kind and specific gravity of gas.
7 Orifice size.
8 Regulator assembly position number.
9 Possible variation in inlet pressure for E.C. Orifice models.
Maximum_____PSIG
Minimum_____PSIG

Shipping Weight -

28 lbs/carton of eight regulators

Regulator Pressure Rating

125 PSIG = Maximum recommended inlet pressure for normal service. Maximum recommended pressure may vary with orifice size.

175 PSIG = Maximum inlet pressure for abnormal or emergency service, without causing damage to regulator case.

5 PSIG = Maximum outlet pressure for normal service.

10 PSIG = Maximum outlet pressure which can be contained by pressure carrying components (no flange leakage to atmosphere except for normal relief action). ***If regulator is subjected to these conditions, it should be removed from service.***

50 PSIG = Maximum outlet pressure for abnormal service without damage to internal components. ***If regulator is subjected to these conditions, it should be removed from service.***

Due to continuous development the information in this document is subject to change.

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